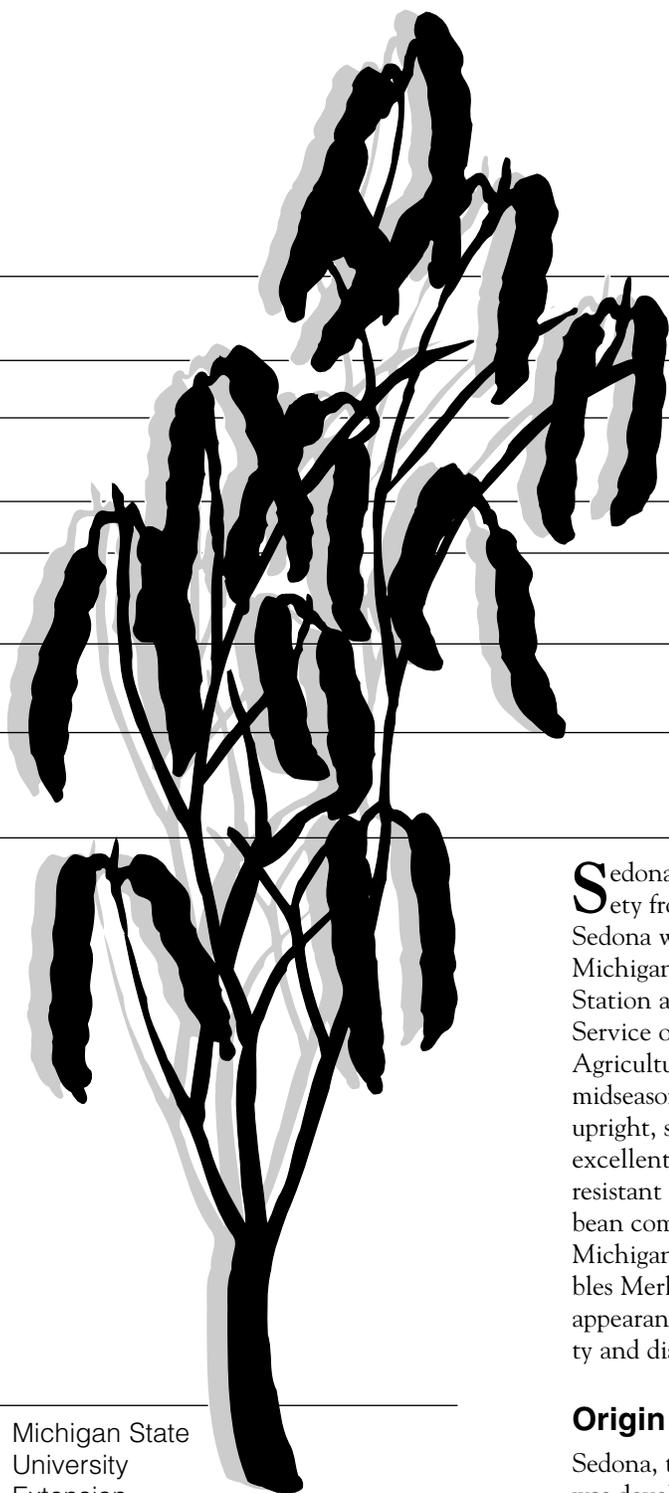


**NEW from  
MSU**

# Sedona

A NEW PINK BEAN  
*for Michigan*



- First high-yielding upright pink bean variety with resistance to lodging.
- Erect short-vine growth habit suitable for direct harvest.
- Matures in 93 days - 2 days earlier than Merlot small red bean.
- Uniform maturity and excellent dry-down.
- Only pink bean variety with resistance to rust and mosaic virus.
- Attractive pink seed with excellent canning quality and seed integrity after cooking.
- Caution: Stem breakage has been observed in some plants prior to harvest under conditions of high wind and low plant densities.

**S**edona is a new pink dry bean variety from Michigan State University. Sedona was released jointly by the Michigan Agricultural Experiment Station and the Agricultural Research Service of the U.S. Department of Agriculture. Sedona is a high-yielding, midseason maturing variety with an upright, short-vine growth habit and excellent canning quality. Sedona is resistant to strains of bean rust and bean common mosaic virus in Michigan. Sedona most closely resembles Merlot small red bean in plant appearance, high yields, canning quality and disease resistance.

## Origin and Breeding History

Sedona, tested as breeding line S00809, was developed to be the first upright, Type-II, short-vine, midseason maturity pink bean variety with disease resistance and good canning quality. Sedona was derived from a cross between two MSU bean breeding lines,

X94076 and R94142. X94076 is a pink bean breeding line that lacked acceptable upright architecture. R94142 was an upright small red breeding line from the USDA-ARS program at MSU that had upright architecture and breeding background similar to the Merlot small red variety. The cross was made with the intent of combining the upright architecture and good canning quality of R94142 with the pink seed coat color of X94076. The cross made in 1994 was advanced to the F7 generation and was entered into yield trials in 2000 under the code number S00809. Sedona is the first commercial pink cultivar with upright growth habit and resistance to bean rust disease and bean common mosaic virus (BCMV).

## Agronomic and Disease Information

Sedona exhibits an upright and indeterminate Type-II growth habit that is superior in lodging resistance to the

Michigan State  
University  
Extension

Extension  
Bulletin  
E-2964

February 2006

decumbent architecture of current commercial pink varieties such as Viva and UI-537. Plants of Sedona are upright in appearance and average around 20 inches in height (Table 1). Sedona is taller and sets pods higher in the plant canopy than ROG 312 pink. Sedona has white flowers and blooms 42 days after planting. Sedona is a mid- to full- season variety maturing on average 93 days after planting with a range from 90 to 95 days, depending on the location and season. Sedona matures 2 days earlier than Merlot and 5 days earlier than Rufus and Brooks. Maturity and dry-down are very uniform, and plants of Sedona exhibit an attractive red-pink stem color approaching maturity. During late pod fill, some plants have exhibited a tendency to break at ground level under conditions of strong winds and low planting densities. Sedona has been tested extensively for 6 years (2000-2005) at 30 locations and

averaged 24.5 cwt/acre. Sedona yielded equivalent to Othello pinto over 17 locations but yielded 6 percent less than Merlot at 26 locations. Sedona had an 8 percent yield advantage over Brooks, and Rufus, and it matured 5 days earlier. Sedona carries resistance to all current races of bean rust present in Michigan. In addition, Sedona possesses the bc-1<sup>2</sup> gene that conditions resistance to many of the strains of BCMV present in the United States. Like commercial small red dry bean varieties such as Merlot and Rufus, Sedona is susceptible to white mold, common bacterial blight and anthracnose. Growers should follow current recommended practices for fertility and weed control in growing Sedona beans.

### Quality Characteristics

Sedona has the pink seed coat typical of the commercial pink bean market class.

After harvest, Sedona appears to retain its pink seed coat color better than other commercial pink varieties such as Viva, which produce an undesirable after-darkening brown color when grown in Michigan. The average seed size of Sedona is 36 g per 100 seeds, but seed size can range from 33 to 37 g per 100 seeds (1,200 to 1,400 seeds/pound). The average seed size for Sedona is well within the acceptable range for commercial pink varieties and also falls in the range of the three small red varieties tested (Table 1). Sedona was rated by a team of panelists as above average for canning quality, scoring a 5.4 on a scale of 1 to 7, where 1 is the worst, 7 is the best, and 4 is considered average. Rufus scored only slightly better, with a 5.9 for canning quality, and the other two varieties tested scored much lower than Sedona or Rufus. Over 5 years of testing, Sedona has consistently stood out as having above average visual canning quality. After canning, Sedona did not differ significantly from small red bean varieties in hydration and drained weight ratios, but it exhibited a slightly softer texture than the small red varieties shown in Table 1. Because of comparable appearance after processing, Sedona could be substituted for small red beans.

**Table 1. Comparison of agronomic, disease and canning characteristics of Sedona with three small red bean varieties: Merlot, Brooks and Rufus (2000-2005).**

Varieties	Sedona	Merlot	Brooks	Rufus
<b>Agronomic Traits</b>				
Days to Flower	42	45	47	43
Days to Maturity	93	95	98	98
Height (inches)	20	22	19	12
Lodging Score	3.0	2.8	4.1	4.9
Plant Type	Erect	Erect	Semi-erect	Prostrate
100 Seed Weight (G)	36	39	34	33
Percent Yield (Locations)	100 (30)	106 (26)	92 (16)	92 (13)
<b>Disease Resistance Traits</b>				
BCMV	MR	MR	S	HR
Michigan Rust Races	R	R	R	S
White Mold (%)	46	44	—	—
<b>Canning Quality Traits</b>				
Hydration Ratio	1.8	1.6	1.8	1.7
Washed Drained Ratio	1.3	1.3	1.3	1.3
Texture	61	84	93	72
Visual Rating	5.4	4.8	3.3	5.9

Lodging: 1 = erect, 5 = prostrate; 100 seed weight - grams.

Diseases: BCMV = Bean common mosaic virus, MR= moderate resistance (bc-1<sup>2</sup> gene), HR = highly resistant (bc-2<sup>2</sup> gene), S = susceptible, R = resistant.

White mold: percent disease incidence (average of 90 plants grown under disease pressure).

Canning: texture of canned beans measured in kg/100g of force to shear cooked product.

Visual rating: 1 = very undesirable, 4 = neither desirable nor undesirable, 7 = very desirable.

### Release and Research Fee

Sedona was released by Michigan State University with the option that Sedona be sold for seed by variety name only as a class of certified seed under the three-class system used in Michigan (breeder, foundation, certified). A royalty will be assessed on each hundredweight unit of either foundation seed or certified seed sold, depending on production location. The variety is licensed to the Michigan Crop Improvement Association, which will collect the royalty. Plant variety protection is pending.

By J.D. Kelly<sup>1</sup>, G.V. Varner<sup>2</sup> and C. L. Sprague<sup>1</sup>.

<sup>1</sup> Crop and Soil Sciences Dept., MSU, <sup>2</sup> Production Research Advisory Board, Saginaw, Mich.